

Site Need Statement

General Reference Information	
1 *	Need Title: Remote Jumper Gasket Replacement
2 *	Need Code: RL-WT110
3 *	<p>Need Summary: Jumper gaskets are currently being replaced by lifting the jumper out of the pit, and performing the replacement by the pit at contact. This activity involves significant radiation exposure and contamination risks for the workers.</p> <p>The need is for a method (tool) that would allow remote replacement of jumper gaskets, without having to lift the jumper out of the pit. In addition to significantly reducing the worker exposure and contamination risks, this may reduce the time required for gasket change-outs (depending on the method developed).</p>
4 *	Origination Date: November 2001
5 *	Need Type: Technology Need
6	Operation Office: Office of River Protection (ORP)
7	Geographic Site Name: Hanford Site
8 *	Project: Safe Storage PBS No: RL-TW03
9 *	<p>National Priority:</p> <p>___ 1. <u>High</u> - Critical to the success of the EM program, and a solution is required to achieve the current planned cost and schedule.</p> <p><u>X</u> 2. <u>Medium</u> - Provides substantial benefit to EM program projects (e.g., moderate to high life-cycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays).</p> <p>___ 3. <u>Low</u> - Provides opportunities for significant, but lower cost savings or risk reduction, may reduce the uncertainty in EM program project success.</p>
10	Operations Office Priority:
Problem Description Information	
11	<p>Operations Office Program Description: The overall purpose of the safe-storage function is to operate and maintain the double shell tank (DST) and single shell tank (SST) farms in a safe and compliant manner until the contained wastes are retrieved and the tank farms are ready for closure. This includes performing day-to-day operations, maintaining and upgrading infrastructure, resolving safety issues, assessing tank integrity, characterizing the waste, and managing the DST waste inventory. This function also includes interim stabilization of selected SSTs. The end state of safe storage is containment of DST and SST tank wastes in a manner that supports safe waste retrieval for final waste disposal; tank-farm structures, including DSTs and SSTs, ready for final disposal and closure; and tank farms amenable and ready for the mitigation of any environmental releases that occurred during storage and retrieval of tank waste.</p>
12	<p>Need/Problem Description:</p> <p>Program Baseline Summary (PBS) No.: TW03</p> <p>** Work Breakdown Structure (WBS) No.: 5.01.03.04.02</p> <p>** TIP No.: The needed device described in this need statement is needed at any time in the Tank Farms mission, until the end of tank retrieval (two decades at least).</p>
13	Functional Performance Requirements:
**	Schedule Requirements:
14	Definition of Solution:
15 *	Targeted Focus Area: Tanks Focus Area (TFA)
16	Potential Benefits:

17 *	Potential Cost Savings: \$100K to \$1M per year
18 *	Potential Cost Savings Narrative: The cost savings will depend on whether the device developed overall accelerates the gasket replacement or not. Cost savings will also come from reduced risk of contamination spread.
19	Cultural/Stakeholder Basis:
**	<p>Technical Basis: No remote jumper gasket replacement system is available, but the Tank Focus Area is considering a concept. Its applicability to the Hanford tank farm pits is to be assessed.</p> <p>As Low As Reasonably Achievable (ALARA) considerations for personnel radiation exposure are a corner stone of worker safety and engineering considerations for equipment design and operation in the Tank Farms.</p>
20	Environment, Safety, and Health Basis: The main purpose of this proposed development is to reduce workers exposure risk.
21	Regulatory Drivers: Another significant outcome of the proposed development is a reduced risk of environmental contamination.
22 *	Milestones: The proposed development reduces schedule risks for all safe storage and retrieval milestones that involve jumper gasket replacement.
23 *	Material Streams: TW03 - Sludge, salt, liquid (RL-HLW-20)
24	TSD System: Double Shell Tank and Single Shell Tank systems.
25	Major Contaminants: Pu-238, 239, 240, 241; AM-241; U-238; C-14; Ni-59/63; Nb-94; Tc-99; I-129; Cm-242; Sr-90; Cs-137; Sn-126; Se-79; chromium; nitrate; nitrite; complexants (EDTA/HEDTA)
26	Contaminated Media: Tank waste consisting of high molarity sodium hydroxide/sodium nitrate solution containing saturated saltcake and/or sludge.
27	Volume/Size of Contaminated Media: The single shell tanks are generally 75 ft. in diameter, and up to 40 feet deep with their tops buried about 10 feet below the ground surface. All double shell tanks are 75 feet in diameter, and about 40 feet deep, and are similarly buried.
28 *	Earliest Date Required: FY 2002
29 *	Latest Date Required: End of Tank Farms mission
Baseline Technology Information	
30	<p>Baseline Technology(ies)/Process:</p> <p>Technology Insertion Point: The needed device described in this need statement is needed at any time in the Tank Farms mission, until the end of tank retrieval (two decades at least).</p>
31	Life-Cycle Cost Using Baseline:
32	Uncertainty on Baseline Life-Cycle Cost:
33	Completion Date Using Baseline:
Points of Contact (POC)	
34	<p>Contractor End User POCs: W.J. (Wally) Kennedy, CHG, 509-372-1115, F/509-373-5030, W_J_Wally_Kennedy@rl.gov D. P. (Dan) Niebuhr, CHG, 509-373-4639, F/509-373-4275, Daniel_P_Dan_Niebuhr@rl.gov</p>
35	<p>DOE End User POCs: M.J. (Mike) Royack, DOE-OSD, 509-376-4420, F/509-376-9118, Michael_J_Royack@rl.gov</p>
36**	<p>Other Contacts: K.A. (Ken) Gasper, CHG, 509-373-1948, F/509-376-1788, Kenneth_A_Ken_Gasper@rl.gov</p>

*Element of a Site Need Statement appearing in IPABS-IS

**Element of a Site Need Statement required by CHG